

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

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**ORDER NO. R2-2008-0030
NPDES NO. CA0004910**

**WASTE DISCHARGE REQUIREMENTS
FOR THE DOW CHEMICAL COMPANY, PITTSBURG PLANT**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	The Dow Chemical Company
Name of Facility	Pittsburg Plant
Facility Address	901 Loveridge Road
	Pittsburg, CA 94565
	Contra Costa County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the Dow Chemical Company from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
E-001	Industrial Wastewater	38°, 01', 48" N	121°, 51', 07" W	New York Slough

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	May 14, 2008
This Order shall become effective on:	July 1, 2008
This Order shall expire on:	June 30, 2013
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on May 14, 2008.

Bruce H. Wolfe, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	The Dow Chemical Company
Name of Facility	Pittsburg Plant
Facility Address	901 Loveridge Road
	Pittsburg, CA 94565
	Contra Costa County
Facility Contact, Title, and Phone	Greg Dubitsky, EH&S Delivery Specialist, 925-432-5154
Mailing Address	P.O. Box 1398 Pittsburg, CA 94565
Type of Facility	Industrial
Facility Design Flow	0.54 million gallons per day

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Regional Water Board), finds:

- A. Background.** The Dow Chemical Company (hereinafter Discharger) is currently discharging pursuant to Order No. 01-142 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0004910. The Discharger submitted a Report of Waste Discharge, dated April 27, 2006, and applied for an NPDES permit renewal to discharge up to 0.54 million gallons per day (MGD) of treated wastewater from the Pittsburg Plant, hereinafter Facility.
- B. Facility Description.** The Discharger owns and operates a chemical manufacturing plant at 901 Loveridge Road in Pittsburg, Contra Costa County. The Discharger conducts chemical research and manufactures agricultural chemicals, fumigants, fungicides, carbon tetrachloride, hydrochloric acid, and latex. The Discharger discharges industrial wastewater at Discharge Point E-001 as shown in the Site Map (Attachment B). Stormwater discharges (and certain non-stormwater discharges such as fire protection equipment testing, landscape irrigation runoff, and rinse water of condenser coils from air conditioners) are not regulated by this permit, but are regulated by the general industrial stormwater permit (State Water Board Order No. 97-03-DWQ).

Discharged at E-001 is the reverse osmosis reject (brine) from the Discharger's water treatment facility. The Discharger treats raw water from Contra Costa Canal or New York Slough (approximately 1 MGD at maximum flow) and power plant boiler and cooling tower blowdown (approximately 0.06 MGD) for use in its manufacturing operations. Contra Costa Canal is the primary water supply source and New York

Slough is an alternate source. The treatment system consists of clarification, filtration, pH adjustment, and reverse osmosis. About half of the flow (0.52 MGD at maximum flow) goes completely through the treatment system and is used in the Discharger's manufacturing operations. The other half (0.54 MGD at maximum flow) is used to backwash the filtration and reverse osmosis units and the resulting brine is discharged to New York Slough. The discharge occurs approximately four days per week. The maximum daily discharge rate is about 0.24 MGD and the long term average is about 0.013 MGD. Attachment C provides a flow schematic of the facility. This wastewater is discharged into New York Slough approximately 100 feet offshore at a depth of 25 feet.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).
- D. Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations¹, require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with Part 125, section 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. Water Quality-Based Effluent Limitations.** Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and

¹ All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

- H. Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Basin (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to the receiving waters are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
E-001	New York Slough	Industrial Service Supply (IND) Industrial Process Supply (PRO) Municipal Water Supply (MUN) Agricultural Supply (AGR) Navigation (NAV) Water Contact Recreation (REC1) Non-contact Water Recreation (REC2) Commercial and Sport Fishing (COMM) Wildlife Habitat (WILD) Preservation of Rare and Endangered Species (RARE) Fish Migration (MIGR) Fish Spawning (SPWN) Estuarine Habitat (EST)

Requirements of this Order implement the Basin Plan.

The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the

state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

- J. State Implementation Policy.** On March 2, 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
- K. Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds one year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes a compliance schedule for dioxin-TEQ. A detailed discussion of the basis for the compliance schedule is included in the Fact Sheet.
- L. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
- M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on pH, chlorine residual, and temperature. Restrictions on these pollutants are discussed in the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA. Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the

beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless “applicable water quality standards for purposes of the CWA” pursuant to section 131.21(c)(1). Collectively, this Order’s restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

- N. Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board’s Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.
- O. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in the previous Order have been removed in this Order. As discussed in detail in the Fact Sheet (Attachment F), this removal of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.
- P. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.
- Q. Monitoring and Reporting.** Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and

reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

- R. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that apply under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.
- S. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet of this Order.
- T. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED, that Order No. 01-142 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

- A. Discharge of wastewater at a location or in a manner different from that described in the Findings of this Order is prohibited.
- B. Discharge of wastewater at any point at which the wastewater does not receive an initial dilution of at least 10:1 is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

1. Effluent Limitations for Conventional and Non-Conventional Pollutants

- a. The Discharger shall maintain compliance with the following effluent limitations for conventional pollutants at Discharge Point E-001:

Table 6. Conventional and Non-Conventional Effluent Limitations

Parameter	Units	Instantaneous Minimum	Instantaneous Maximum
Temperature	°C	---	30
pH	standard units	6.0	9.0

- b. The temperature at E-001 shall not exceed the receiving water temperature in New York Slough by more than 11.1°C at any point in time.
- c. The salinity at E-001 shall not exceed ten times the receiving water salinity in New York Slough at any point in time.

2. Effluent Limitations for Toxic Substances

The Discharger shall maintain compliance with the following effluent limitations for toxic substances at Discharge Point E-001:

Table 7. Effluent Limitations for Toxic Substances ^(1,4)

Parameter	Units	Average Monthly	Maximum Daily
Copper ⁽²⁾	µg/L	45	83
Cyanide ⁽³⁾	µg/L	2.6	6.4
Dioxin-TEQ ⁽⁵⁾	µg/L	1.4E-08	2.8E-08

Footnotes for Table 7:

- (1) (a) All analyses shall be performed using current U.S. EPA approved methods, or equivalent methods approved in writing by the Executive Officer.
- (b) Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).
- (c) All metal limitations are total recoverable.
- (2) Alternate Effluent Limits for Copper:
If a copper SSO for the receiving water becomes legally effective, resulting in adjusted saltwater CCC of 2.5 µg/L and CMC of 3.9 µg/L as documented in the *June 13, 2007 Basin Plan amendment and Staff Report*, upon its effective date, the following limitations shall supersede those copper limitations listed in Table 7 (the rationale for these effluent limitations can be found in the Fact Sheet [Attachment F]).

MDEL of 51 µg/L and AMEL of 27 µg/L.
- (3) Alternate Effluent Limits for Cyanide:
The Regional Water Board adopted Resolution R2-2006-086 establishing SSOs for cyanide. If a cyanide SSO for the receiving water becomes legally effective, resulting in adjusted saltwater CCC of 2.9 µg/L (based on the assumption in *Staff Report on Proposed Site-Specific Water Quality Objectives of Cyanide for San Francisco Bay*, dated December 4, 2006), upon its effective date, the following limitations shall supersede those cyanide limitations listed in Table 7 (the rationale for these effluent limitations can be found in the Fact Sheet [Attachment F]).

MDEL of 46 µg/L and AMEL of 19 µg/L

- (4) Minimum Levels. The Discharger shall achieve the following minimum levels for compliance determination purposes as defined in Section VII of this Order.

Table 8. Minimum Levels

<u>Constituent</u>	<u>Minimum Level</u>	<u>Units</u>
Copper	0.5 or 2	µg/L
Cyanide	5	µg/L
2,3,7,8-TCDD	5	pg/L
1,2,3,7,8-PeCDD	25	pg/L
1,2,3,4,7,8-HxCDD	25	pg/L
1,2,3,6,7,8-HxCDD	25	pg/L
1,2,3,7,8,9-HxCDD	25	pg/L
1,2,3,4,6,7,8-HpCDD	25	pg/L
OCDD	50	pg/L
2,3,7,8-TCDF	5	pg/L
1,2,3,7,8-PeCDF	25	pg/L
2,3,4,7,8-PeCDF	25	pg/L
1,2,3,4,7,8-HxCDF	25	pg/L
1,2,3,6,7,8-HxCDF	25	pg/L
1,2,3,7,8,9-HxCDF	25	pg/L
2,3,4,6,7,8-HxCDF	25	pg/L
1,2,3,4,6,7,8-HpCDF	25	pg/L
1,2,3,4,7,8,9-HpCDF	25	pg/L
OCDF	50	pg/L

- (5) The WQBEL for dioxin-TEQ shall become effective on July 1, 2018.

3. Acute Toxicity

- a. Representative samples of the discharge at E-001 shall meet the following limitations for acute toxicity. Bioassays shall be conducted in compliance with Section V.A of the Monitoring and Reporting Program (MRP, Attachment E).

The survival of organisms in undiluted effluent shall be an eleven (11) sample median value of not less than 90 percent survival, and an eleven (11) sample 90 percentile value of not less than 70 percent survival.

- b. These acute toxicity limitations are further defined as follows:

11 sample median: Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit if five or more of the past ten or less bioassay tests show less than 90 percent survival.

90th percentile: A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit if one or more of the past ten or less bioassay tests show less than 70 percent survival.

- c. Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on

the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

- d. If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the discharge is in compliance with the ammonia limits, then such toxicity does not constitute a violation of this effluent limitation.

4. Chronic Toxicity

- a. Compliance with the Basin Plan narrative chronic toxicity objective shall be demonstrated according to the following tiered requirements based on results from representative samples of the discharge, as measured at, meeting test acceptability criteria and Section V.B of the MRP (Attachment E). Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limitations for chronic toxicity.
 - 1) Conduct routine monitoring.
 - 2) Accelerate monitoring after exceeding a three sample median value of 10 chronic toxicity units (TUc) or a single sample maximum of 20 TUc or greater. Accelerated monitoring shall consist of monthly monitoring.
 - 3) Return to routine monitoring if accelerated monitoring does not exceed either "trigger" in (2), above.
 - 4) If accelerated monitoring confirms consistent toxicity above either "trigger" in (2), above, initiate toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) in accordance with a workplan submitted in accordance with Section V.B of the MRP (Attachment E), and that incorporates any and all comments from the Executive Officer.
 - 5) Return to routine monitoring after appropriate elements of TRE workplan are implemented and either the toxicity drops below "trigger" levels in (2), above, or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.
- b. The Discharger shall conduct routine monitoring with the test species and protocols specified in Section V.B of the MRP (Attachment E). The Discharger shall also perform Chronic Toxicity Screening Phase monitoring as described in Appendix E-1 of the MRP (Attachment E). Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms

used in the chronic toxicity monitoring are identified in Appendices E-1 and E-2 of the MRP (Attachment E).

V. RECEIVING WATER LIMITATIONS

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order.

1. The discharge shall not cause the following conditions to exist in New York Slough at any place at levels that cause nuisance or adversely affect beneficial uses:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growth;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; or
 - e. Toxic or other deleterious substances to be present in concentrations of quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or that render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State at any place within one foot of the water surface:
 - a. Dissolved Oxygen: 7.0 mg/L, Minimum
The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
 - b. Dissolved sulfide: 0.1 mg/L, Maximum
 - c. pH Variation from normal ambient pH by more than 0.5 pH units.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

- 2. Regional Water Board Standard Provisions.** The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (Attachment G), and any amendments thereto. Where provisions or reporting requirements specified in this Order and Attachment G are different for equivalent or related provisions or reporting requirements given in the Standard Provisions in Attachment D, the specifications of this Order and/or Attachment G shall apply in areas where those provisions are more stringent. Duplicative requirements in the federal Standard Provisions in VI.A.1.2, above (Attachment D) and the regional Standard Provisions (Attachment G) are not separate requirements. A violation of a duplicative requirement does not constitute two separate violations.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

- a. If present or future investigations demonstrate that the discharge(s) governed by this Order will or have a reasonable potential to cause or contribute to, or will cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters.
- b. If new or revised WQOs, or TMDLs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs and waste load allocations in TMDLs.
- c. If translators or other water quality studies provide a basis for determining that a permit condition(s) should be modified.
- d. If administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge.
- e. As authorized by law.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Effluent Characterization for Selected Constituents

The Discharger shall continue to monitor and evaluate the discharge from E-001 for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 letter titled *Requirement for Monitoring of Pollutants in Effluent and*

Receiving Water to Implement New Statewide Regulations and Policy (hereinafter referred to as the August 6, 2001 Letter) according to the sampling frequency specified in the attached MRP (Attachment E). Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001 Letter under Effluent Monitoring for Major Discharger.

The Discharger shall evaluate on an annual basis if concentrations of any constituent increase over past performance. The Discharger shall investigate the cause of any increase. The investigation may include, but need not be limited to, an increase in the effluent monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. This may be satisfied through identification of these constituents as "Pollutants of Concern" in the Discharger's Pollutant Minimization Program described in Provision C.3, below. A summary of the annual evaluation of data and source investigation activities shall also be reported in the annual self-monitoring report.

A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the Order expiration date. This final report shall be submitted with the application for permit reissuance.

b. Ambient Background Receiving Water Study

The Discharger shall collect or participate in collecting background ambient receiving water monitoring for priority pollutants that is required to perform an RPA and to calculate effluent limitations. The data on the conventional and certain non-conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the receiving water at a point after the discharge has mixed with the receiving waters. This provision may be met through a collaborative ambient monitoring program for San Francisco Bay such as the Regional Monitoring Program. This permit may be reopened, as appropriate, to incorporate effluent limits or other requirements based on Regional Water Board review of these data.

The Discharger shall submit (or cause to be submitted on its behalf) a final report that presents all the data to the Regional Water Board 180 days prior to Order expiration. This final report shall be submitted with the application for permit reissuance.

3. Best Management Practices and Pollution Prevention

Pollutant Minimization Program

The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or

aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:

- i. A sample result is reported as DNQ and the effluent limitation is less than the RL; or
- ii. A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section X.B.4.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

- iii. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;
- iv. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;
- v. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
- vi. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
- vii. An annual status report that shall be sent to the Regional Water Board including:
 - (a) All PMP monitoring results for the previous year;
 - (b) A list of potential sources of the reportable priority pollutant(s);
 - (c) A summary of all actions undertaken pursuant to the control strategy; and
 - (d) A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications and Status Reports

The Discharger shall annually or within 90 days of completion of any significant facility or process changes, review and update its Operations and Maintenance Manual. The Discharger shall submit to the Regional Water Board by April 15 of each year, as part of its annual report, the results of the review process including a description of any completed revisions and estimated time schedule for completion of any planned revisions.

5. Compliance Schedules for Dioxin-TEQ

The Discharger shall comply with the following tasks and deadlines:

Table 8. Compliance Schedule for Dioxin-TEQ.

Task	Deadline
a. Investigate sample collection, sample handling, and analytical laboratory quality assurance and quality control practices to ensure that analytical results for dioxin-TEQ are accurately determined and reported. Submit a report by the deadline describing the results of the investigation and any changes in quality assurance and quality control practices implemented.	September 1, 2008
b. If discharge data from the previous two years show the Discharger cannot comply (as defined in Section 2.4.5 of the State Implementation Policy) with the permit effluent limits listed in Table 7 (even though they do not become effective until July 1, 2018), submit a plan to identify all dioxin-TEQ sources to the discharge and complete tasks c, d, and e.	February 1, 2009
c. Implement the plan developed in action "b" and submit a report that contains an inventory of the pollutant sources.	June 1, 2009
d. Submit a report documenting development and initial implementation of a program to reduce and prevent dioxin-TEQ in the discharge. The program shall consist, at a minimum, of the following elements: <ul style="list-style-type: none"> i. Maintain a list of sources of pollutants of concern. ii. Investigate each source to assess the need to include it in the program. iii. Identify and implement targeted actions to reduce or eliminate dioxin-TEQ 	August 1, 2009
e. Continue to implement the program described in action "d" and submit annual status reports that evaluate its effectiveness and summarize planned changes. Report whether the program has successfully brought the discharge into compliance with the effluent limits. If not, identify and implement additional measures to further reduce discharges.	Annually each February 28 in Best Management Practices and Pollutant Minimization Report required by Permit Provision VI.C.3
g. Submit documentation confirming complete plan implementation and comply with effluent limits for dioxin-TEQ.	July 1, 2018

6. Action Plan for Cyanide

The Discharger shall implement monitoring and surveillance, pretreatment, source control, and pollution prevention for cyanide in accordance with the following tasks and time schedule.

Table 9. Cyanide Action Plan

Task	Compliance Date
1. Review Potential Cyanide Sources The Discharger shall submit an inventory of all potential sources of cyanide to the discharge.	Within 90 days of effective date of alternate cyanide limits
2. Implement Cyanide Control Program The Discharger shall submit a plan for and begin implementation of a program to minimize cyanide discharges. At a minimum, the plan shall include the following elements: <ol style="list-style-type: none"> Inspect each potential source to assess the need to include that contributing source in the control program. Prepare an emergency monitoring and response plan to be implemented if a significant cyanide discharge occurs. If ambient monitoring performed in the main body of San Francisco Bay shows cyanide concentrations of 1.0 µg/L or higher, undertake actions to identify and abate cyanide sources responsible for the elevated ambient concentrations. 	Within 90 days of completing Task 1
3. Report Status of Cyanide Control Program Submit a report to the Regional Water Board documenting implementation of the cyanide control program.	Annually with annual pollution prevention reports due April 30.

7. Action Plan for Copper

The Discharger shall implement source control and pollution prevention for copper in accordance with the following tasks and time schedule.

Table 10. Copper Action Plan

Task	Compliance Date
1. Review Potential Copper Sources The Discharger shall submit an inventory of all potential copper sources to the discharge.	Within 90 days of effective date of this Order
2. Implement Copper Control Program The Discharger shall submit a plan for and begin implementation of a program to reduce copper discharges identified in Task 1.	Within 90 days of completing Task 1
3. Implement Additional Measures If the three-year rolling mean copper concentration of the receiving water exceeds 2.8 µg/L, evaluate the effluent copper concentration trend, and if it is increasing, develop and implement additional measures to control copper discharges.	Within 90 days of exceedance
4. Report Status of Copper Control Program Submit a report to the Regional Water Board documenting implementation of the copper control program.	Annually with annual pollution prevention reports due April 30.

8. Acute Toxicity Most Sensitive Species

The Discharger shall submit a report acceptable to the Executive Officer, due no later than 60 days after the effective date of this Order, to determine to most sensitive species to use for acute toxicity testing.

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. General.

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

B. Multiple Sample Data.

When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic

Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters

All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL)

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Ocean Waters

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL)

RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System

The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water

Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ)

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

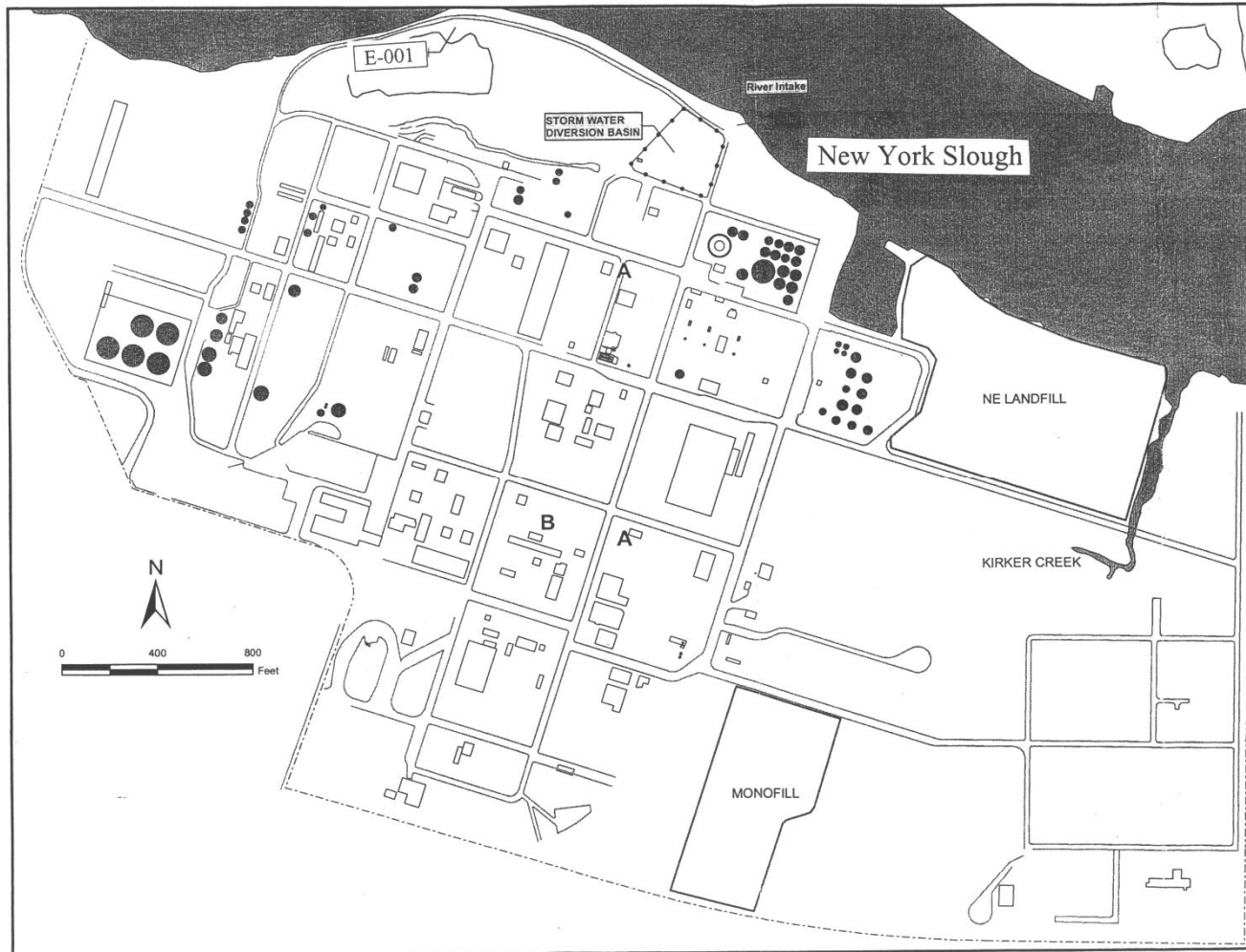
μ is the arithmetic mean of the observed values; and

n is the number of samples.

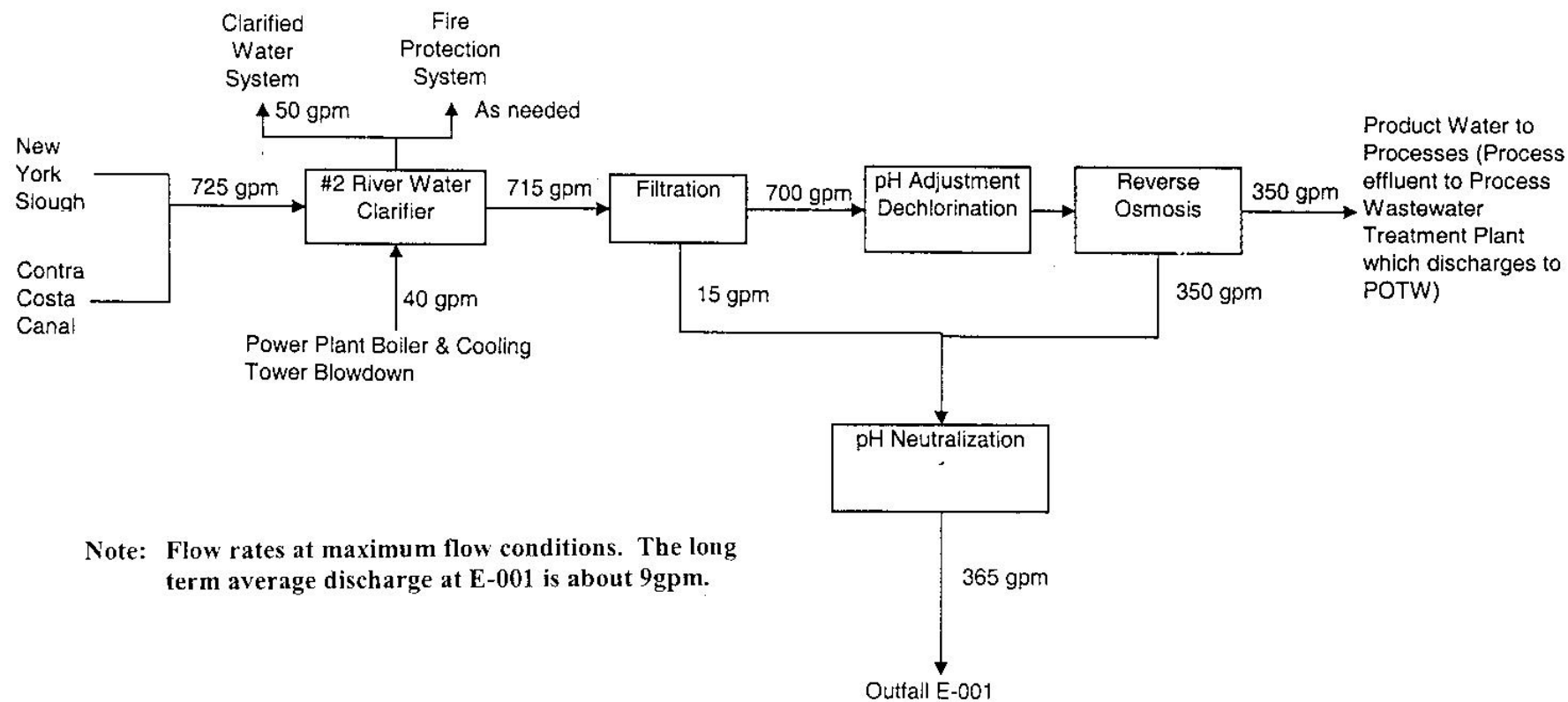
Toxicity Reduction Evaluation (TRE)

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – SITE MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)
3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
 - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

- b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
 - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
5. Notice
 - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)
 - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

- a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
 - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

- A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)
3. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as

specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
 - b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. § 122.41(l)(1)(ii).)
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Discharger shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that

discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

- a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));
 - b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or
 - d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):
 - a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));
 - b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or
 - d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A. The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the requirements contained in Self-Monitoring Program, Part A, adopted August 1993 (SMP, Attachment G). If any discrepancies exist between the MRP and SMP, the MRP prevails.
- B. Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods, or methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Quality Control Board's Quality Assurance Program.
- C. Sampling and analysis of additional constituents is required pursuant to Table 1 of the Regional Water Board's August 6, 2001 Letter titled Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy.
- D. *Minimum Levels.* For compliance and reasonable potential monitoring, analyses shall be conducted using the commercially available and reasonably achievable detection levels that are lower than the WQOs/WQC or the effluent limitations, whichever is lower. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L, approximately equal to parts per billion (ppb).

Table E-1 lists the test method the Discharger may use for compliance and reasonable potential monitoring for the pollutants with effluent limits.

Table E-1. Test Methods and Minimum Levels for Pollutants with Reasonable Potential

CTR #	Constituent	Types of Analytical Methods ⁽¹⁾											
		Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPG FAA	HYD RIDE	CVAF	DCP
6	Copper								0.5	2			
8	Mercury ⁽²⁾											0.0005	

CTR #	Constituent	Types of Analytical Methods ⁽¹⁾ Minimum Levels (µg/L)											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPG FAA	HYD RIDE	CVAF	DCP
14	Cyanide				5								
	Dioxin-TEQ ⁽³⁾	½ USEPA 1613 specified MLs											

(1) Analytical Methods / Laboratory techniques are defined as follows:

GC = Gas Chromatography;
GCMS = Gas Chromatography/Mass Spectrometry;
Color = Colorimetric;
GFAA = Graphite Furnace Atomic Absorption;
ICPMS = Inductively Coupled Plasma/Mass Spectrometry;
SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. USEPA 200.9); and
CVAF = Cold Vapor Atomic Fluorescence.

- (2) The Discharger shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA method 1631) for mercury monitoring, which specifies a ML of 0.5 ng/L or 0.0005 µg/L.
- (3) The Discharger shall achieve MLs for Dioxin-TEQ using ½ the MLs specified in USEPA method 1613 as follows:

Dioxin Congener	Minimum Level (pg/L)
2,3,7,8-TCDD	5
1,2,3,7,8-PeCDD	25
1,2,3,4,7,8-HxCDD	25
1,2,3,6,7,8-HxCDD	25
1,2,3,7,8,9-HxCDD	25
1,2,3,4,6,7,8-HpCDD	25
OCDD	50
2,3,7,8-TCDF	5
1,2,3,7,8-PeCDF	25
2,3,4,7,8-PeCDF	25
1,2,3,4,7,8-HxCDF	25
1,2,3,6,7,8-HxCDF	25
1,2,3,7,8,9-HxCDF	25
2,3,4,6,7,8-HxCDF	25
1,2,3,4,6,7,8-HpCDF	25
1,2,3,4,7,8,9-HpCDF	25
OCDF	50

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-2. Monitoring Station Locations

Monitoring Location Name	Monitoring Location Description
E-001	Effluent - At any point in the outfall from the treatment facility at which all waste tributary to that discharge is present, but prior to discharge into New York Slough.
C-11	Receiving water – At a point in New York Slough located not more that 30 meters east (upstream) from the offshore end of the outfall.
C-12	Receiving water – At a point in New York Slough located not more that 30 meters west (downstream) from the offshore end of the outfall.

C-13	Receiving water – At a point in New York Slough located not more that 15 meters offshore from the offshore end of the outfall.
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III. EFFLUENT MONITORING REQUIREMENTS – MONITORING LOCATION E-001

The Discharger shall monitor wastewater effluent at E-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow Rate	MGD	---	continuous
pH	pH units	---	continuous
temperature	°C	---	continuous
salinity	ppt ⁽¹⁾	C-24 ⁽²⁾	quarterly ⁽³⁾
acute toxicity	% survival	C-24	quarterly
chronic toxicity ⁽⁴⁾	TUc	C-24	quarterly
copper	mg/L	C-24	monthly
mercury ⁽⁵⁾	mg/L	C-24	monthly
cyanide ⁽⁶⁾	mg/L	grab	monthly
dioxin-TEQ ⁽⁷⁾	mg/L	C-24	monthly
standard observations	---	---	monthly
remaining priority pollutants	mg/L	grab ⁽⁸⁾	twice per five years

Notes for Table E-3:

- (1) ppt = parts per thousand
- (2) C-24 = 24 hour composite sample
- (3) To be collected on the same day as the receiving water samples for salinity.
- (4) Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V.B of the MRP. Note that accelerated monitoring required in Section V.B of the MRP is required to occur on a monthly basis.
- (5) The Discharger may, at its option, sample effluent for mercury either as grab or 24-hour composite samples.
- (6) Each sampling event shall consist of a composite of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in an appropriate container and appropriately preserved. Grab samples for cyanide may also be composited following appropriate laboratory practices prior to analysis.
- (7) Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of USEPA Method 1613.
- (8) Per August 6, 2001 Letter.

IV. RECEIVING WATER MONITORING REQUIREMENTS

1. The Discharger shall monitor the receiving water in New York Slough at C-11, C-12 and C-13 as follows:

Table E-4. Receiving Water Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	pH units	grab ⁽¹⁾	quarterly
temperature	°C	grab ⁽¹⁾	quarterly
salinity	ppt ⁽²⁾	grab ⁽¹⁾	quarterly
dissolved oxygen	mg/L	grab	quarterly
dissolved oxygen	% saturation	grab	quarterly
standard observations	---	---	quarterly

Notes for Table E-4:

(1) To be collected on the same day as the effluent samples (E-001) for each parameter.

(2) ppt = parts per thousand

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor acute and chronic toxicity at E-001 as follows:

A. Whole Effluent Acute Toxicity

1. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to static renewal bioassays.
2. Test organisms shall be the most sensitive species, as determined by the Discharger pursuant to Provision VI.C.8.
3. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 5th Edition.
4. Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

B. Whole Effluent Chronic Toxicity

1. Chronic Toxicity Monitoring Requirements

- a. *Sampling.* The Discharger shall collect 24-hour composite samples of the effluent in accordance with the frequency specified in the table above, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.
- b. *Test Species.* *Thalassiosira pseudonana*.
- c. *Methodology.* Sample collection, handling and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms," currently third edition (EPA-821-R-02-014), and "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).
- d. *Dilution Series.* The Discharger shall conduct tests at 100%, 75%, 50%, 25%, and 12.5%. The "%" represents percent effluent as discharged.

2. Chronic Toxicity Reporting Requirements

- a. *Routine Reporting.* Toxicity test results for the current reporting period shall include, at a minimum, for each test:
 - i. Sample date(s)
 - ii. Test initiation date
 - iii. Test species
 - iv. End point values for each dilution (e.g. number of young, growth rate, percent survival)
 - v. NOEC value(s) in percent effluent
 - vi. IC15, IC25, IC40, and IC50 values (or EC15, EC25 ... etc.) in percent effluent
 - vii. TUc values (100/NOEC, 100/IC25, or 100/EC25)
 - viii. Mean percent mortality (\pm s.d.) after 96 hours in 100% effluent (if applicable)
 - ix. NOEC and LOEC values for reference toxicant test(s)
 - x. IC50 or EC50 value(s) for reference toxicant test(s)
 - xi. Available water quality measurements for each test (pH, D.O., temperature, conductivity, hardness, salinity, ammonia)
- b. *Compliance Summary.* The results of the chronic toxicity testing shall be provided in the next self-monitoring report and shall include a summary table of chronic toxicity data from at least three of the most recent samples. The

information in the table shall include items listed above under 2.a, specifically, item numbers i, iii, v, vi (IC25 or EC25), vii, and viii.

3. Chronic Toxicity Reduction Evaluation (TRE)

- a. The Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order to be prepared for responding to toxicity events. The Discharger shall review and update its work plans as necessary to remain current and applicable to the discharge and discharge facilities.
- b. Within 30 days of exceeding either trigger for accelerated monitoring, the Discharger shall submit to the Regional Water Board a specific TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.
- c. Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed either trigger, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.
- d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, such as summarized below:
 - i. Tier 1 consists of basic data collection (routine and accelerated monitoring).
 - ii. Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.
 - iii. Tier 3 consists of a toxicity identification evaluation (TIE).
 - iv. Tier 4 consists of evaluation of options for additional effluent treatment processes.
 - v. Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
 - vi. Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
- e. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with Effluent Limitations Section IV.6.a).
- f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.
- g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps

shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

- h. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.
- i. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

(Not applicable)

VII. RECLAMATION MONITORING REQUIREMENTS

(Not applicable)

VIII. MODIFICATIONS TO PART A OF SELF-MONITORING PROGRAM

Modify Section F.4 as follows:

Self-Monitoring Reports

[Add the following to the beginning of the first paragraph]

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Regional Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices.

[And add at the end of Section F.4 the following:]

- g. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include identification of the measurement suspected to be invalid and notification of intent to submit, within 60 days, a formal request to invalidate the measurement, the original measurement in question, the reason for invalidating the measurement. The request shall include all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.) and discuss the corrective actions taken or planned (with a time schedule for completion) to prevent recurrence of the sampling or measurement problem.

The invalidation of a measurement requires the approval of Regional Water Board staff and will be based solely on the documentation submitted at that time.

h. Reporting Data in Electronic Format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

- 1) Reporting Method: The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS), and in the Progress Report letter dated December 17, 2000, or in a subsequently approved format that the Permit has been modified to include.
- 2) Monthly or Quarterly Reporting Requirements: For each reporting period (monthly or quarterly as specified in SMP Part B), an electronic SMR shall be submitted to the Regional Water Board in accordance with Section F.4.a-g. above. However, until USEPA approves the electronic signature or other signature technologies, dischargers that are using the ERS must submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, a violation report, and a receipt of the electronic transmittal.
- 3) Annual Reporting Requirements: Discharger who have submitted data using the ERS for at least one calendar year are exempt from submitting an annual report electronically, but a hard copy of the annual report shall be submitted according to Section F.5 below.

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachments D and G) related to monitoring, reporting, and recordkeeping, except as otherwise specified below.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit self-monitoring reports in accordance with the requirements described below.
2. The Discharger shall submit monthly Self-Monitoring Reports including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order for each calendar month. Monthly SMRs shall be due on the 30th day following the end of each calendar month, covering samples collected during that calendar month; annual reports shall be due on February 1 following each calendar year.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule as given in Table E-6:

Table E-6. Monitoring Period

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period
Continuous	Day after permit effective date	All
1 / day	Day after permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
1 / week 2 / week 3 / week	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
1 / month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month
1 / quarter	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
1 / year	Closest of May 1 or November 1 following (or on) permit effective date	Alternate between once during November 1 through April 30 (one year), and once during May 1 through October 31 (following year)
2 / year	Closest of May 1 or November 1 following (or on) permit effective date	One during November 1 through April 30 One during May 1 through October 31
Each Occurrence	Anytime during the discharge event or as soon as possible after aware of the event	At a time which sampling can characterize the discharge event

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) or Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR §136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND. In the ERS, the MDL is to be reported and a qualifier of "<".
 - d. The Discharger shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.
 6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs, discuss corrective actions taken or planned, and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
 7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (Attachment D), to the address shown below:

Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612
ATTN: NPDES Division
 8. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the MRP, then the approved ERS requirements supersede.

C. Discharge Monitoring Reports (DMRs)

1. As described in Section IX.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

If by standard mail:

Division of Water Quality
c/o DMR Processing Center
P.O. Box 100
Sacramento, CA 95812-1000

Or if by FedEx, UPS, or other private carrier:

Division of Water Quality
c/o DMR Processing Center
1001 I Street, 15th Floor
Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

Appendix E-1

CHRONIC TOXICITY

DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

- A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25} . If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.
- B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.
- C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as USEPA's Bootstrap Procedure.
- D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

- A. The Discharger shall perform screening phase monitoring:
 - 1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or
 - 2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
 - 1. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer.
 - 2. Two stages:

- a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached).
 - b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.
3. Appropriate controls.
4. Concurrent reference toxicant tests.

Appendix E-2

SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	(<i>Skeletonema costatum</i>) (<i>Thalassiosira pseudonana</i>)	Growth rate	4 days	1
Red alga	(<i>Champia parvula</i>)	Number of cystocarps	7–9 days	3
Giant kelp	(<i>Macrocystis pyrifera</i>)	Percent germination; germ tube length	48 hours	2
Abalone	(<i>Haliotis rufescens</i>)	Abnormal shell development	48 hours	2
Oyster Mussel	(<i>Crassostrea gigas</i>) (<i>Mytilus edulis</i>)	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	(<i>Strongylocentrotus purpuratus</i> , <i>S. franciscanus</i>) (<i>Dendraster excentricus</i>)	Percent fertilization	1 hour	2
Shrimp	(<i>Mysidopsis bahia</i>)	Percent survival; growth	7 days	3
Shrimp	(<i>Holmesimysis costata</i>)	Percent survival; growth	7 days	2
Topsmelt	(<i>Atherinops affinis</i>)	Percent survival; growth	7 days	2
Silversides	(<i>Menidia beryllina</i>)	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.
2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.
3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994.

Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	(<i>Pimephales promelas</i>)	Survival; growth rate	7 days	4
Water flea	(<i>Ceriodaphnia dubia</i>)	Survival; number of young	7 days	4
Alga	(<i>Selenastrum capricornutum</i>)	Cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay ^[2]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater ^[1] Marine/Estuarine	0	1 or 2	3
	4	3 or 4	0
Total number of tests	4	5	3

[1] The freshwater species may be substituted with marine species if:

- (a) The salinity of the effluent is above 1 part per thousand (ppt) greater than 95 percent of the time, or
- (b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

[2] (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

- (b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Discharger in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	2 071017001
Discharger	The Dow Chemical Company
Name of Facility	Pittsburg Plant
Facility Address	901 Loveridge Road
	Pittsburg, CA 94565
	Contra Costa County
Facility Contact, Title and Phone	Greg Dubitsky, EH&S Delivery Specialist, 925-432-5154
Authorized Person to Sign and Submit Reports	Dale Backlund, Responsible Care Leader, 925-432-5508
Mailing Address	P.O. Box 1398, Pittsburg, CA 94565
Billing Address	SAME
Type of Facility	Industrial – SIC codes 2879, 2819, 2821, and 2869
Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	A
Pretreatment Program	No
Reclamation Requirements	Not applicable
Facility Permitted Flow	0.54 million gallons per day (MGD)
Facility Design Flow	0.54 MGD
Watershed	San Francisco Bay
Receiving Water	New York Slough
Receiving Water Type	Estuarine

- A.** The Dow Chemical Company (hereinafter Discharger) is the owner and operator of the Dow Chemical Company Pittsburg Plant (hereinafter Facility), an industrial facility. The Discharger owns the property at 901 Loveridge Road, Pittsburg, CA on which the Facility is located.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policies are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to New York Slough, a water of the United States, and is currently regulated by Order No. 01-142, which was adopted on November 28, 2001, and expired on October 31, 2006. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.
- C.** The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on April 27, 2006.

II. FACILITY DESCRIPTION

The Discharger conducts chemical research and manufactures agricultural chemicals, fumigants, fungicides, carbon tetrachloride, hydrochloric acid, and latex at its facility in northern Pittsburg, CA. The discharge regulated by this permit is reverse osmosis reject (brine) from its water treatment units to purify water used in its industrial operations. Stormwater discharges are not regulated by this permit, but are regulated by the general industrial stormwater permit (State Water Board Order No. 97-03-DWQ).

A. Description of Wastewater Treatment or Controls

The Discharger treats raw water from New York Slough (approximately 1 MGD at maximum flow) and power plant boiler and cooling tower blowdown (approximately 0.06 MGD) for use in its manufacturing operations. The treatment system consists of clarification, filtration, pH adjustment, and reverse osmosis. About half of the flow (0.52 MGD at maximum flow) goes completely through the treatment system and is used in the Discharger's manufacturing operations. The other half (0.54 MGD at maximum flow) is used to backwash the filtration and reverse osmosis units and the resulting brine is discharged to New York Slough. The average discharge rate is about 0.24 MGD.

B. Discharge Points and Receiving Waters

This wastewater is discharged into New York Slough approximately 100 feet offshore at a depth of 25 feet at approximately N38°01'28", W121°51'17".

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the existing Order for discharges from E-001 and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data January 2002 - March 2007	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Copper	µg/L		37		20
Mercury	µg/L	0.084	1	0.028	0.028
Nickel	µg/L		65		19
Settleable Matter	ml/L/hr	0.1	0.2	<0.1	<0.1
Chlorine Residual ⁽¹⁾	mg/L		0.0	0.0	0.0

Footnote for Table F-2:

- (1) The instantaneous maximum limit for chlorine residual is 0.0 mg/L. Effluent monitoring for residual chlorine was not required when the Discharger switches from river intake water to Contra Costa Canal intake water. The Discharger no longer chlorinates or dechlorinates its source water.

D. Compliance Summary

The following violations occurred during the permit term as summarized in Table F-3:

Table F-3. Compliance Summary

Parameter	Type of Limit	Date of Violation	Permit Limit	Reported Value
pH	minimum for E-004 ⁽¹⁾	December 10, 2003	6.0 minimum	5.5
temperature	maximum for E-001	July 22, 2006	30°C maximum	35.8°C
temperature	maximum for E-001	July 25, 2006	30°C maximum	33°C

Footnote for Table F-3:

- (1) E-004 was a storm water discharge location covered under Regional Water Board Order No. 01-142. Storm water discharges are no longer covered by this permit, but are regulated by the Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities.

Mandatory Minimum Penalties for these violations are expected to be brought to the Regional Water Board for its consideration on or before August 13, 2008.

E. Planned Changes

The Discharger has not reported any planned changes of its operations to the Regional Water Board.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA.

C. State and Federal Regulations, Policies, and Plans

- 1. Water Quality Control Plans.** The Regional Water Quality Control Board (Regional Water Board) adopted a Water Quality Control Plan for the San Francisco Bay Region (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, be considered suitable or potentially suitable for municipal or domestic supply. Beneficial uses applicable to New York Slough are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
E-001	New York Slough	Industrial Service Supply (IND) Industrial Process Supply (PRO) Municipal Water Supply (MUN) Agricultural Supply (AGR) Navigation (NAV) Water Contact Recreation (REC1) Non-contact Water Recreation (REC2) Commercial and Sport Fishing (COMM) Wildlife Habitat (WILD) Preservation of Rare and Endangered Species (RARE) Fish Migration (MIGR) Fish Spawning (SPWN) Estuarine Habitat (EST)

Requirements of this Order implement the Basin Plan.

- 2. Thermal Plan.** The State Water Board adopted a Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan) on May 18, 1972, and amended this plan on

September 18, 1975. This plan contains temperature objectives for surface waters. The wastewater regulated by this permit could potentially be higher temperature than the receiving water. Requirements of this Order implement the Thermal Plan.

- 3. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.
- 4. State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
- 5. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes (40 C.F.R. § 131.21, 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
- 6. Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

- 7. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations¹ section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

D. Impaired Water Bodies on CWA 303(d) List

On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State [hereinafter referred to as the 303(d) list], pursuant to provisions of CWA section 303(d) requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The Sacramento San Joaquin Delta is listed as an impaired waterbody. The pollutants impairing this water body include chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated waste load allocations.

1. Total Maximum Daily Loads

The Regional Water Board plans to adopt total maximum daily loads (TMDLs) for pollutants on the 303(d) list in Central San Francisco Bay within the next 10 years. Future review of the 303(d)-list for Central San Francisco Bay may result in revision of the schedules or provide schedules for other pollutants.

2. Waste Load Allocations

The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. Final WQBELs for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

3. Implementation Strategy

The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

- a. Data Collection.** The Regional Water Board has given the Discharger the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or Water Quality Objectives/ Water Quality Criteria (WQOs/WQC). This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require discharger to characterize the pollutant loads from its facility into the water-quality limited waterbodies. The results will be used in the development of TMDLs and may be

¹ All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

used to update or revise the 303(d) list or change the WQOs/WQC for the impaired waterbodies including New York Slough.

- b. Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among Discharger through the Regional Monitoring Program (RMP) or other appropriate funding mechanisms.

E. Other Plans, Policies and Regulations

This Order is also based on the following plans, policies, and regulations:

1. The Federal *Water Pollution Control Act*, Sections 301 through 305, and 307, and amendments thereto, as applicable (CWA);
2. The USEPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986] and subsequent amendments (the USEPA Gold Book);
3. Applicable Federal Regulations [40 CFR §§ 122 and 131];
4. 40 CFR §131.36(b) and amendments [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237];
5. USEPA's December 10, 1998 National Recommended Water Quality Criteria compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364];
6. USEPA's December 27, 2002 Revision of National Recommended Water Quality Criteria compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095]; and
7. Guidance provided with State Water Board actions remanding permits to the Regional Water Board for further consideration.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source Discharger to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A (no discharge other than that described in this Order):** This prohibition is similar to that of the previous permit. This prohibition is

based on California Water Code section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge, and subsequently in the Order, are prohibited.

2. Discharge Prohibition III.B (no discharge receiving less than 10:1 dilution):

This prohibition is the same as in the previous permit and is based on Discharge Prohibition No. 1 from Table 4-1 of the Basin Plan, which prohibits discharges that do not receive a minimum 10:1 initial dilution. Further, this Order allows a 10:1 dilution credit in the calculation of some WQBELs, and these limits would not be protective of water quality, if the discharge did not actually achieve a 10:1 minimum initial dilution.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of control:

- Best practical treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- Best conventional pollutant control technology (BCT) represents the control from existing industrial point source of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonable" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
- New source performance standards (NSPS) represents the best available demonstrated control technology standards. The intent of the NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Sections 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. USEPA has not issued ELGs for the discharge of reverse osmosis brine reject water. The technology-based effluent limitations for this permit are based on the Basin Plan, BPT, BCT, and BPJ. In

setting these limits, the factors specified in section 125.3(d), as shown in the table below were considered.

Table F-5. Factors Considered Pursuant to 40 CFR 125.3(d)

Factors	Considerations
Cost relative to benefits	The cost of imposing these limits is reasonable given that the Discharger can comply without modifying the existing process.
Comparison of cost and pollutant reductions from publicly owned treatment works to cost and pollutant reductions from reverse osmosis units	The wastewater is a byproduct of a treatment process to obtain high-quality water for the Discharger's commercial products. No additional wastewater treatment to remove pollutants occurs. Therefore, the cost is less than if it were treated at a publicly owned treatment works.
Age of equipment and facilities	The limits can be met with existing equipment and facilities.
Process employed	The limits can be met with the existing process.
Engineering aspects of various controls	The existing controls are practicable and capable of meeting the limits.
Process changes	No process changes are necessary to meet the limits.
Non-water quality environmental impacts	Because no process changes are necessary, no non-water quality impacts are foreseeable.

2. Applicable Technology-Based Effluent Limitations

Effluent limits for settleable solids are no longer required per the 2004 Basin Plan amendment. Effluent limits for residual chlorine are no longer required because the Discharger no longer chlorinates its intake water. Other technology-based effluent limits are as follows:

Table F-6. Technology-Based Effluent Limits

Parameter	Units	Instantaneous Minimum	Instantaneous Maximum
Temperature	°C	---	30
pH	standard units	6.0	9.0

- a. Temperature. In addition to the 30°C maximum, the temperature at E-001 shall not exceed the receiving water temperature in New York Slough by more than 11.1°C at any point in time. These effluent limitations are unchanged from the previous permit and is based on Thermal Plan.
- b. pH. This effluent limitation is unchanged from the previous permit and it is based on the Basin Plan (Table 4-2).

- c. Salinity: The salinity at E-001 shall not exceed ten times the receiving water salinity in New York Slough at any point in time. This effluent limitation is based on the water quality objective for salinity in the Basin Plan by accounting for the required 10:1 dilution of the effluent in the receiving water.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan; the CTR, established by USEPA at 40 CFR 131.38; and the NTR, established by USEPA at 40 CFR 131.36. Some pollutants have WQC/WQOs established by more than one of these three sources.

- a. *Applicable Beneficial Uses.* Beneficial uses applicable to New York Slough are from the Basin Plan and are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
E-001	New York Slough	Industrial Service Supply (IND) Industrial Process Supply (PRO) Municipal Water Supply (MUN) Agricultural Supply (AGR) Navigation (NAV) Water Contact Recreation (REC1) Non-contact Water Recreation (REC2) Commercial and Sport Fishing (COMM) Wildlife Habitat (WILD) Cold Water Habitat (COLD) Preservation of Rare and Endangered Species (RARE) Fish Migration (MIGR) Fish Spawning (SPWN) Estuarine Habitat (EST)

b. *Numeric WQOs/WQC.* The WQOs/WQC applicable to the receiving water of this discharge are from the Basin Plan, CTR, and NTR.

(1) Basin Plan. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide. The narrative toxicity objective states, in part, “[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.” The bioaccumulation objective states, in part, “[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.” Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

(2) CTR. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, although Tables 3-3 and 3-4 of the Basin Plan include numeric objectives for certain of these priority toxic pollutants, which supersede criteria of the CTR (except in the South Bay south of the Dumbarton Bridge).

(3) NTR. The NTR establishes numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Sacramento-San Joaquin Delta. These criteria of the NTR are applicable to the Sacramento-San

Joaquin Delta, which includes New York Slough, the receiving water for this Discharger.

- c. *Narrative WQOs/WQC.* Where reasonable potential exists, but numeric WQOs/WQC have not been established or updated in the Basin Plan, CTR, or NTR, 40 CFR §122.44(d) and Chapter 4 of the Basin Plan specify that WQBELs may be set based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQC to fully protect designated beneficial uses. This Fact Sheet discusses the specific bases and rationales for the effluent limitations.
- d. *Mercury TMDL.* On August 9, 2006, the Regional Water Board adopted Order No. R2-2006-0052 amending the Basin Plan to incorporate a mercury TMDL for San Francisco Bay. Pursuant to this amendment, the Regional Water Board adopted an NPDES watershed permit (Order No. R2-2007-0077) establishing mercury effluent limits for all municipal and industrial Discharger within the watershed. That permit contains mercury effluent limits for the Dow Chemical Company.
- e. *WQBELs.* To determine the need for and, when necessary, establish WQBELs the Regional Water Board staff has followed the requirements of applicable NPDES regulations, including 40 CFR Parts 122 and 131, as well as guidance and requirements established by the Basin Plan; USEPA's *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991); and the State Water Resources Control Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the SIP, 2005).
- f. *Basin Plan Receiving Water Salinity Policy.* The Basin Plan (like the CTR and the NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the latter calculated based on ambient hardness) for each substance.

The receiving water for this discharger, New York Slough, which is a part of the Sacramento-San Joaquin Delta, is an estuarine environment based on salinity data generated through the San Francisco Estuary Institute's Regional Monitoring Program (RMP) at the San Joaquin River (BG30) sampling station between 1993 and 2005. In that period, the average salinity was 0.3 ppt, and the maximum observed salinity was 2.0 ppt. The salinity was less than or equal to 1 ppt in 91 percent of samples. As salinity was less than 1 ppt in less than 95 percent of receiving water samples, the more stringent of the freshwater and

saltwater criteria from the Basin Plan, NTR, and CTR are applicable to this discharge.

- g. *Shallow/Deep Water Discharge.* The discharge from the Dow Chemical facility to the New York Slough is viewed as a deep water discharge, which is defined by the Basin Plan as a discharge through a diffuser that receives a minimum initial dilution of 10 to 1. Pursuant to the Basin Plan, WQBELs established by this Order are based on a minimum initial dilution of 10 to 1 except where noted.
- h. *Copper Translators.* Because NPDES regulations at 40 CFR 122.45(c) require that effluent limitations for metals be expressed as total recoverable metal, and applicable WQC for metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, USEPA establishes default translators that are used in NPDES permitting activities; however, site-specific conditions such as water temperature, pH, suspended solids, and organic carbon greatly impact the form of metal (dissolved, filterable, or otherwise) that is present in the water, and therefore available to cause toxicity. In general, the dissolved form of the metals is more available and more toxic to aquatic life than filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective WQOs.

For deep water discharges to the Sacramento-San Joaquin Delta, the Regional Water Board staff used the following translators for copper, based on recommendations of the Clean Estuary Partnership's (CEPs) *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). Copper translators for deepwater discharges to the Sacramento-San Joaquin Delta are 0.38 for AMEL and 0.67 for MDEL. In determining the need for and calculating WQBELs for all other metals, the Regional Water Board staff used default translators established by the USEPA in the CTR at 40 CFR 131.38(b)(2), Table 2.

3. Determining the Need for WQBELs

NPDES regulations at 40 CFR §122.44(d)(1)(i) require permits to include WQBELs for all pollutants (non-priority or priority) "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric criteria within a State water quality standard" (have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required. For non-priority pollutants, Regional Water Board staff used available monitoring data, the receiving water's designated uses, and/or previous permit pollutant limitations to determine Reasonable Potential as described in Sections 3.a. and 3.b. below. For priority pollutants, Regional Water Board staff used the methods prescribed in Section 1.3 of the SIP to determine if the discharge from these Discharger demonstrate reasonable potential as described below.

a. Reasonable Potential Analysis

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the USEPA, the NTR, and the CTR. The Basin Plan objectives and CTR criteria are shown in Appendix A of this Fact Sheet.

b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility operations to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable SSOs or WQC. Appendix A of this Fact Sheet shows the stepwise process described in Section 1.3 of the SIP.

The RPA projects a maximum effluent concentration (MEC) for each pollutant based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

- (1) The first trigger is activated if the MEC is greater than the lowest applicable WQO ($MEC \geq WQO$), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.
- (2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO ($B > WQO$), and the pollutant is detected in any of the effluent samples.
- (3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO. A limitation may be required under certain circumstances to protect beneficial uses.

c. Effluent Data

The Regional Water Board's August 6, 2001 letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the August 6, 2001 Letter) to all permittees, formally required the Discharger (pursuant to Section 13267 of the CWC) to initiate or continue to monitor for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed these effluent data and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from

January 2004 through December 2006 for most inorganic pollutants, and from February 2002 through September 2006 for most organic pollutants.

d. Ambient Background Data

Ambient background values are used in the RPA and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and these data from the RMP were used as background data in performing the RPA for this Discharger.

Not all the constituents listed in the CTR have been analyzed by the RMP. These data gaps are addressed by the August 6, 2001 Letter. The August 6, 2001 Letter formally required Discharger (pursuant to Section 13267 of the California Water Code) to conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region Discharger (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station.

e. Reasonable Potential Determination

The MECs, most stringent applicable WQOs/WQC, and background concentrations used in the RPA are presented in the following table, along with the RPA results (yes or no) for each pollutant analyzed. Reasonable Potential was not determined for all pollutants, as there are not applicable WQOs/WQC for all pollutants, and monitoring data was not available for others. RPA results are shown below and in Appendix A of this Fact Sheet. Based on a review of the effluent data collected during the previous permit term, the pollutants that exhibit Reasonable Potential by Trigger 1 are copper, mercury, cyanide, and dioxin-TEQ.

Table F-7. Reasonable Potential Analysis Summary

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQOWQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
1	Antimony	0.5	4300	Not Available	No
2	Arsenic	10	36	3.7	No
3	Beryllium	0.1	No Criteria	Not Available	Ud
4	Cadmium	0.07	1.1	0.066	No
5a	Chromium (III)	6.8	207	80	No
5b	Chromium (VI)	6.6	11	Not Available	No
6	Copper	20	7.2	9.9	Yes
7	Lead	2.3	3.2	2.3	No
8	Mercury (303d listed)	0.028	0.025	0.038	Yes
9	Nickel (303d listed)	14	30	22	No
10	Selenium (303d listed)	3.0	5.0	0.45	No
11	Silver	0.02	2.2	0.057	No
12	Thallium	0.08	6.3	Not Available	No
13	Zinc	80	86	18	No
14	Cyanide	4	1.0	Not Available	Yes
15	Asbestos	2	No Criteria	Not Available	Ud
16	2,3,7,8-TCDD (303d listed)	< 6.37E-07	1.4E-08	Not Available	No
16-TEQ	Dioxin TEQ (303d listed)	1.36E-05	1.4E-08	Not Available	Yes
17	Acrolein	< 0.56	780	Not Available	No
18	Acrylonitrile	< 0.33	0.66	Not Available	No
19	Benzene	< 0.06	71	Not Available	No
20	Bromoform	0.7	360	Not Available	No
21	Carbon Tetrachloride	0.09	4.4	Not Available	No
22	Chlorobenzene	< 0.06	21000	Not Available	No
23	Chlorodibromomethane	< 0.07	34	Not Available	No
24	Chloroethane	< 0.07	No Criteria	Not Available	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	Not Available	Ud
26	Chloroform	0.6	No Criteria	Not Available	Ud
27	Dichlorobromomethane	< 0.06	46	Not Available	No
28	1,1-Dichloroethane	< 0.05	No Criteria	Not Available	Ud
29	1,2-Dichloroethane	< 0.06	99	Not Available	No
30	1,1-Dichloroethylene	< 0.06	3.2	Not Available	No
31	1,2-Dichloropropane	< 0.05	39	Not Available	No
32	1,3-Dichloropropylene	< 0.06	1700	Not Available	No
33	Ethylbenzene	< 0.06	29000	Not Available	No
34	Methyl Bromide	< 0.05	4000	Not Available	No
35	Methyl Chloride	< 0.04	No Criteria	Not Available	Ud
36	Methylene Chloride	0.09	1600	Not Available	No
37	1,1,2,2-Tetrachloroethane	< 0.06	11	Not Available	No
38	Tetrachloroethylene	0.5	8.85	Not Available	No
39	Toluene	< 0.06	200000	Not Available	No
40	1,2-Trans-Dichloroethylene	< 0.05	140000	Not Available	No
41	1,1,1-Trichloroethane	< 0.06	No Criteria	Not Available	Ud
42	1,1,2-Trichloroethane	< 0.07	42	Not Available	No
43	Trichloroethylene	< 0.06	81	Not Available	No
44	Vinyl Chloride	< 0.05	525	Not Available	No
45	2-Chlorophenol	< 0.4	400	Not Available	No
46	2,4-Dichlorophenol	< 0.3	790	Not Available	No
47	2,4-Dimethylphenol	< 0.9	2300	Not Available	No
48	2-Methyl- 4,6-Dinitrophenol	1	765	Not Available	No
49	2,4-Dinitrophenol	< 0.3	14000	Not Available	No

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
50	2-Nitrophenol	< 0.3	No Criteria	Not Available	Ud
51	4-Nitrophenol	< 0.2	No Criteria	Not Available	Ud
52	3-Methyl 4-Chlorophenol	0.05	No Criteria	Not Available	Ud
53	Pentachlorophenol	< 0.9	7.9	Not Available	No
54	Phenol	< 0.4	4600000	Not Available	No
55	2,4,6-Trichlorophenol	< 0.2	6.5	Not Available	No
56	Acenaphthene	< 0.17	2700	0.0019	No
57	Acenaphthylene	< 0.03	No Criteria	0.000492	Ud
58	Anthracene	< 0.16	110000	0.000389	No
59	Benzidine	< 0.6	0.00054	Not Available	No
60	Benzo(a)Anthracene	< 0.12	0.049	0.0011	No
61	Benzo(a)Pyrene	< 0.09	0.049	0.0008215	No
62	Benzo(b)Fluoranthene	< 0.11	0.049	0.0019	No
63	Benzo(ghi)Perylene	< 0.06	No Criteria	0.0012465	Ud
64	Benzo(k)Fluoranthene	< 0.16	0.049	0.000928	No
65	Bis(2-Chloroethoxy)Methane	< 0.5	No Criteria	Not Available	Ud
66	Bis(2-Chloroethyl)Ether	< 0.6	1.4	Not Available	No
67	Bis(2-Chloroisopropyl)Ether	< 0.3	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	< 0.3	5.9	< 0.0002	No
69	4-Bromophenyl Phenyl Ether	< 0.4	No Criteria	Not Available	Ud
70	Butylbenzyl Phthalate	< 0.4	5200	< 0.000052	No
71	2-Chloronaphthalene	< 0.3	4300	Not Available	No
72	4-Chlorophenyl Phenyl Ether	< 0.4	No Criteria	< 0.3	Ud
73	Chrysene	Not Available	0.049	0.0011	No
74	Dibenzo(a,h)Anthracene	< 0.04	0.049	0.00067	No
75	1,2-Dichlorobenzene	< 0.05	17000	Not Available	No
76	1,3-Dichlorobenzene	< 0.3	2600	Not Available	No
77	1,4-Dichlorobenzene	< 0.06	2600	Not Available	No
78	3,3 Dichlorobenzidine	< 0.2	0.077	Not Available	No
79	Diethyl Phthalate	< 0.5	120000	Not Available	No
80	Dimethyl Phthalate	< 0.5	2900000	Not Available	No
81	Di-n-Butyl Phthalate	< 0.4	12000	< 0.000027	No
82	2,4-Dinitrotoluene	< 0.3	9.1	Not Available	No
83	2,6-Dinitrotoluene	< 0.3	No Criteria	Not Available	Ud
84	Di-n-Octyl Phthalate	< 0.4	No Criteria	Not Available	Ud
85	1,2-Diphenylhydrazine	< 0.6	0.54	Not Available	No
86	Fluoranthene	< 0.03	370	0.0034	No
87	Fluorene	< 0.02	14000	0.0024	No
88	Hexachlorobenzene	< 0.4	0.00077	0.00011	No
89	Hexachlorobutadiene	< 0.3	50	Not Available	No
90	Hexachlorocyclopentadiene	< 0.1	17000	Not Available	No
91	Hexachloroethane	0.6	8.9	Not Available	No
92	Indeno(1,2,3-cd)Pyrene	< 0.04	0.049	0.0013	No
93	Isophorone	< 0.5	600	Not Available	No
94	Naphthalene	< 0.05	No Criteria	0.0068	Ud
95	Nitrobenzene	< 0.7	1900	Not Available	No
96	N-Nitrosodimethylamine	0.8	8.1	Not Available	No
97	N-Nitrosodi-n-Propylamine	< 0.3	1.4	Not Available	No
98	N-Nitrosodiphenylamine	< 0.5	16	Not Available	No
99	Phenanthrene	Not Available	No Criteria	0.0034	Ud

CTR #	Priority Pollutants	MEC or Minimum DL ^{[a][b]} (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL ^{[a][b]} (µg/L)	RPA Results ^[c]
100	Pyrene	< 0.03	11000	0.0036	No
101	1,2,4-Trichlorobenzene	< 0.4	No Criteria	Not Available	Ud
102	Aldrin	< 0.002	0.00014	0.000004	No
103	Alpha-BHC	< 0.003	0.013	0.00035	No
104	beta-BHC	< 0.003	0.046	0.00012	No
105	gamma-BHC	0.003	0.063	0.001	No
106	delta-BHC	< 0.002	No Criteria	0.000038	Ud
107	Chlordane (303d listed)	< 0.005	0.00059	0.0003	No
108	4,4'-DDT (303d listed)	< 0.002	0.00059	0.00035	No
109	4,4'-DDE (linked to DDT)	< 0.002	0.00059	0.00092	No
110	4,4'-DDD	< 0.002	0.00084	0.00035	No
111	Dieldrin (303d listed)	< 0.002	0.00014	0.00038	No
112	Alpha-Endosulfan	< 0.002	0.0087	0.000057	No
113	beta-Endosulfan	< 0.002	0.0087	0.000042	No
114	Endosulfan Sulfate	< 0.002	240	0.00028	No
115	Endrin	< 0.002	0.0023	0.00015	No
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	Heptachlor	< 0.003	0.00021	0.000011	No
118	Heptachlor Epoxide	< 0.002	0.00011	0.000097	No
119-125	PCBs sum (303d listed)	< 0.03	0.00017	0.00079	No
126	Toxaphene	< 0.15	0.0002	Not Available	No
	Tributyltin	Not Available	0.0074	Not Available	Ud
	Total PAHs	Not Available	15	0.018	Ud
	Total ammonia ^[d]	0.40	1.19	0.16	No

[a] The Maximum Effluent Concentration (MEC) and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

[b] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

[c] RPA Results = Yes, if MEC > WQO/WQC, B > WQO/WQC and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated or there are insufficient data.

[d] WQO/WQC in mg/L, based on Basin Plan's un-ionized ammonia objective of 0.025 mg/L annual median, and 0.16 mg/L maximum north of the Golden Gate Channel, translated to total ammonia using ambient pH, salinity, and temperatures of the Honkers Bay RMP receiving water data from March 1993 to August 2001.

(1) Constituents with limited data. The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

(2) Pollutants with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Discharger

will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

4. WQBEL Calculations

WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of applicable WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential are discussed below.

a. Copper

- (1) Copper WQC.** The chronic and acute marine WQC for copper from the Basin Plan and the CTR are 3.1 and 4.8 micrograms per liter ($\mu\text{g/L}$), respectively, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the site-specific translators of 0.38 (chronic) and 0.67 (acute), as recommended by the Clean Estuary Partnership's (CEP's) *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). The resulting chronic water quality criterion of 8.2 $\mu\text{g/L}$ and acute water quality criterion of 7.2 $\mu\text{g/L}$ were used to perform the RPA.
- (2) RPA Results.** This Order establishes effluent limitations for copper because the MEC of 20 $\mu\text{g/L}$ exceeds the WQC for copper, demonstrating Reasonable Potential by Trigger 1.
- (3) Copper WQBELs.** WQBELs are calculated based on the Basin Plan and CTR's WQC. These criteria are expressed as total recoverable metal using the site-specific translators and the water effects ratio (WER) of 2.4 as recommended by the CEP's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). The effluent limitations for were derived according to SIP procedures using a coefficient of variation of 0.51. The limitations take into account the deep water nature of the discharge, and are therefore based on a minimum initial dilution of 10 to 1, in accordance with the Basin Plan. The WQBELs are 45 $\mu\text{g/L}$ AMEL and 83 $\mu\text{g/L}$ MDEL based on the CTR criteria.
- (4) Immediate Compliance Feasible.** The Discharger's Feasibility Study asserts that the facility can immediately comply with final WQBELs for copper. Statistical analysis of effluent data for copper, collected over the period of May 2004 through May 2007, shows that the 95th percentile (14 $\mu\text{g/L}$) is less than the AMEL (45 $\mu\text{g/L}$); the 99th percentile (18 $\mu\text{g/L}$) is less than the MDEL (83 $\mu\text{g/L}$); and the mean (7.3 $\mu\text{g/L}$) is less than the long term average of the projected normal distribution of the effluent data set after accounting for effluent variability (31 $\mu\text{g/L}$). The Regional Water Board concludes, therefore,

that immediate compliance with final effluent limitations for copper is feasible; final effluent limitations will become effective upon adoption of this Order.

(5) Alternate Limitations for Copper. The Regional Water Board adopted site-specific objectives (SSOs) for copper in non-ocean, marine waters of the Region on June 13, 2007. U.S. EPA has not yet approved the SSOs. The adopted SSOs for copper are to be 2.5 and 3.9 µg/L as four-day and one-hour average (i.e., chronic and acute) criteria, respectively. Final effluent limitations using a WER of 2.4, would be an AMEL of 27 µg/L and an MDEL of 51 µg/L. If these SSOs for copper become effective, the alternate effluent limitations will also immediately become effective, so long as the SSOs and their current justification remain unchanged. The Discharger can immediately comply with these new limits because monitoring data show that the 95th percentile (14 µg/L) is less than the AMEL (27 µg/L); the 99th percentile (18 µg/L) is less than the MDEL (51 µg/L); and the mean (7.3 µg/L) is less than the long term average of the projected normal distribution of the effluent data set after accounting for effluent variability (31 µg/L).

(6) Antibacksliding. Antibacksliding requirements are satisfied as Order 01-142 did not include final effluent limitations for copper.

b. Mercury

Mercury Watershed Permit. Effluent limits for mercury have been established in the mercury watershed permit (Order No. R2-2007-0077) and are therefore unnecessary in this permit.

c. Cyanide

(1) Cyanide WQC. The most stringent applicable WQC for cyanide are established by the NTR for protection of aquatic life in the Sacramento-San Joaquin Delta. The NTR establishes both the saltwater Criterion Maximum Concentration (acute criterion) and the Criterion Chronic Concentration (chronic criterion) at 1.0 µg/L.

(2) RPA Results. This Order establishes effluent limitations for cyanide because the MEC of 4.0 µg/L exceeds the governing WQC of 1.0 µg/L, demonstrating Reasonable Potential by Trigger 1.

(3) Cyanide WQBELs. WQBELs for cyanide, calculated according to SIP procedures, using a coefficient of variation of 0.93, are an AMEL of 2.6 µg/L and an MDEL of 6.4 µg/L. These limitations take into account the deep water nature of the discharge, and are therefore based on a minimum initial dilution of 10 to 1, in accordance with the Basin Plan.

(4) Immediate Compliance Infeasible. The Discharger cannot immediately comply with WQBELs for cyanide. Statistical analysis of effluent data for cyanide collected over the period of May 2004 through May 2007 shows that

the 95th percentile (3.5 µg/L) is greater than the AMEL (2.6 µg/L); the 99th percentile (4.6 µg/L) is less than the MDEL (6.4 µg/L); and the mean (1.2 µg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (1.4 µg/L).

- (5) Need for Cease and Desist Order.** Pursuant to State Water Board Order WQ-2007-0004, interim effluent limitations and compliance schedules are not authorized when final limitations are based on numeric objectives or criteria that were in effect prior to the SIP. This includes the NTR criteria for cyanide. Because it is infeasible for the Discharger to immediately comply with WQBELs for cyanide, the Discharger could discharge in violation of this Order. A Cease and Desist Order has therefore been prepared concurrently with this Order to ensure that the Discharger achieves compliance. It establishes time schedules for the Discharger to complete necessary investigative, preventive, and remedial actions to address its imminent and threatened violations.
- (6) Alternative Limit for Cyanide.** The Regional Water Board amended its Basin Plan to adopt SSOs for cyanide on December 13, 2006. U.S. EPA has not yet approved these SSOs. In the Basin Plan amendment, the site-specific criteria for marine waters are 2.9 µg/L as a four-day average and 9.4 µg/L as a one-hour average. Based on these site-specific criteria, the Discharger's current cyanide data (CV = 0.93), and a 10:1 dilution ratio, WQBELs for cyanide would be an AMEL of 19 µg/L and an MDEL of 46 µg/L. The Discharger can immediately comply with these alternative limits, which will become effective if the SSOs are established and are based on the same assumptions as stated in the Staff Report.
- (7) Antibacksliding.** Antibacksliding requirements are satisfied, as Order 01-142 did not include final effluent limitations for cyanide.

d. Dioxin - TEQ

- (1) WQC.** The Basin Plan narrative WQO for bioaccumulative substances states:

Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.

Because it is the consensus of the scientific community that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms, the Basin Plan's narrative bioaccumulation WQO applies to these pollutants. Elevated levels of dioxins and furans in fish tissue in San Francisco Bay, Suisun Bay, and the Sacramento-San Joaquin Delta demonstrate that the narrative

bioaccumulation WQO is not being met. USEPA has therefore included the Sacramento-San Joaquin Delta as impaired by dioxin and furan compounds in the current 303(d) listing of receiving waters where WQOs are not being met after imposition of applicable technology-based requirements.

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 1.4×10^{-8} µg/L for the protection of human health when aquatic organisms are consumed. When the CTR was promulgated, USEPA stated its support of the regulation of other dioxins and dioxin-like compounds through the use of toxicity equivalents (TEQs) in NPDES permits. For California waters, USEPA stated specifically, "if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme." [65 Fed. Reg. 31682, 31695 (2000)] This procedure, developed by the World Health Organization (WHO) in 1998, uses a set of toxicity equivalency factors (TEFs) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-TCDD. USEPA also stated that the Agency would continue to assess (1) the risks posed by dioxin to public health and (2) the WQC for dioxin that it had promulgated.

To determine if the discharge of dioxins and dioxin-like compounds from the Dow Chemical Plant has reasonable potential to cause or contribute to a violation of the Basin Plan's narrative bioaccumulation WQO, Regional Water Board staff used TEFs to express the measured concentrations of 16 dioxin congeners in effluent and background samples as 2,3,7,8-TCDD. These "equivalent" concentrations were then compared to the CTR numeric criterion for 2,3,7,8-TCDD (1.4×10^{-8} µg/L). Although the 1998 WHO scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's version of the TEF procedure. The CTR has established a specific water quality standard for PCBs, including dioxin-like PCBs, and they are included in the analysis of total PCBs.

- (2) RPA Results.** This Order establishes effluent limitations for dioxin-TEQ because the MEC (1.4×10^{-5} µg/L) exceeds the CTR numeric water quality criterion for 2,3,7,8-TCDD (1.4×10^{-8} µg/L), a numeric translation of the Basin Plan's narrative objective, demonstrating Reasonable Potential by Trigger 1.
- (3) WQBELs.** WQBELs for dioxin-TEQ were calculated pursuant to 40 CFR 122.44(d)(1)(vi)(A), using SIP procedures as guidance. They are an AMEL of 1.4×10^{-8} µg/L and an MDEL of 2.8×10^{-8} µg/L. Because dioxins and furans are on the 303(d) list as impairing the Sacramento-San Joaquin Delta, these limitations are calculated without credit for dilution.
- (4) Immediate Compliance Infeasible.** The Discharger's Feasibility Study asserts that the facility cannot immediately comply with the WQBELs for dioxin-TEQ. With insufficient effluent data to determine the distribution of the

effluent data set or to calculate a mean and standard deviation, feasibility to comply with final effluent limitations is determined by comparing the MEC (1.4×10^{-5} µg/L) to the AMEL (1.4×10^{-8} µg/L) and the MDEL (2.8×10^{-8} µg/L). Based on this comparison, the Regional Water Board concurs with the Discharger's assertion of infeasibility to comply with final WQBELs for dioxin-TEQ.

(5) Interim Effluent Limitation. Because Order 01-142 did not include a final effluent limitation for dioxin-TEQ, and there are insufficient data to statistically determine a performance based interim limitation, it is impractical to set a performance-based interim limitation.

(6) Antibacksliding. Antibacksliding requirements are satisfied, as Order 01-142 did not include a final effluent limitation for dioxin-TEQ.

e. Effluent Limit Calculations

The following table shows the WQBEL calculations for copper, mercury, cyanide, and dioxin-TEQ:

Table F-8. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper		Mercury	Cyanide		Dioxin-TEQ
Units	µg/L		µg/L	µg/L		µg/L
Basis and Criteria Type	BP & CTR SW Aq Life	Alternate limits using SSOs	BP SW Aq Life	NTR SW Aq. Life	Alternate limits using SSOs	Basin Plan (bioaccumulative)
CTR Criteria – Acute	7.2					
CTR Criteria – Chronic	8.2					
SSO Criteria – Acute		3.9				
SSO Criteria – Chronic		2.5				
Water Effects Ratio (WER)	2.4	2.4	1	1	1	1
Lowest WQO	7.2	7.2	0.025	1.0	1.0	1.4E-08
Site Specific Translator – MDEL	0.67	0.67				
Site Specific Translator – AMEL	0.38	0.38				
Dilution Factor (D)	9	9	0	9	9	0
No. of samples per month	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	N
HH criteria analysis required? (Y/N)	N	N	Y	Y	Y	Y
Applicable Acute WQO	17.2	14.0	2.1	1	9.4	
Applicable Chronic WQO	19.6	15.8	0.025	1	2.9	
HH criteria			0.05	220000	220000	1.4E-08
Background (max. conc. for aquatic life)	9.9	9.9	0.038	0.4	0.4	
Background (average conc. for human health)			0.0046	0.4	0.4	
Is the pollutant bioaccumulative? (Y/N)	N	N	Y	N	N	Y
ECA acute	83	51	2.1	6.4	90	
ECA chronic	107	69	0.025	6.4	25	
ECA HH			0.051	2.2E+06	2.2E+06	1.4E-08
No of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	Y
Ave of effluent data points	7.3	7.3	0.0091	1.2	1.2	
Std Dev of effluent data points	3.7	3.7	0.0067	1.1	1.1	
CV calculated	0.51	0.51	0.73	0.93	0.93	N/A
CV selected – Final	0.51	0.51	0.73	0.93	0.93	0.60
ECA acute mult99	0.37	0.37	0.270	0.22	0.22	
ECA chronic mult99	0.58	0.58	0.467	0.39	0.39	
LTA acute	30.6	18.8	0.6	1.4	19.7	
LTA chronic	62	39.9	0.012	2.5	10.0	
minimum of LTAs	30.6	18.8	0.012	1.4	10.0	

PRIORITY POLLUTANTS	Copper		Mercury	Cyanide		Dioxin-TEQ
AMEL mult95	1.5	1.5	1.7	1.9	1.9	1.6
MDEL mult99	2.7	2.7	3.7	4.6	4.6	3.1
AMEL (aq life)	45	27	0.0	2.6	18.8	
MDEL (aq life)	83	51	0.0	6.4	46.0	
MDEL/AMEL Multiplier	1.86	1.86	2.20	2.44		
AMEL (human health)			0.051	2199996	2199996	1.4E-08
MDEL (human health)			0.112	5378689	5378689	2.8E-08
minimum of AMEL for aq. life vs. HH	45	27	0	2.6	19	1.4E-08
minimum of MDEL for aq. life vs. HH	83	51	0	6.4	46	2.8E-08
Current limit in permit (30-day average)	---	---	0.084 interim	---	---	---
Current limit in permit (daily)	37 interim	37 interim	1.0 interim	---	---	---
Final limit – AMEL	45	27	0.020	2.6	19	1.4E-08
Final limit – MDEL	83	51	0.043	6.4	46	2.8E-08
Max Effl Conc (MEC)	20	20	0.028	4	4	1.4E-05

5. Whole Effluent Acute Toxicity

- a. *Permit Requirements.* This Order includes effluent limits for whole-effluent acute toxicity that are unchanged from the previous Order. All bioassays are to be performed according to the USEPA approved method in 40 CFR 136, currently “Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition.” The Discharger is required to use the 5th Edition method for compliance determination upon the effective date of this Order.
- b. *Compliance History.* The Discharger's acute toxicity monitoring data show that, during 2002-2006, its fish survival rates ranged between 60-100%.
- c. *Ammonia Toxicity.* If acute toxicity is observed in the future and the Discharger believes that it is due to ammonia toxicity, this has to be shown through a Toxicity Identification Evaluation (TIE) acceptable to the Executive Officer. If the Discharger demonstrates to the satisfaction of the Executive Officer that exceedance of the acute toxicity limits is caused by ammonia and that the ammonia in the discharge is in accordance with the ammonia discharge limit, then such toxicity does not constitute a violation of this effluent limit. This is based on Basin Plan Section 3.3.20, under "Un-Ionized Ammonia." If ammonia toxicity is verified in the TIE, the Discharger may utilize an adjustment protocol approved by the Executive Officer for the routine bioassay testing.

6. Whole Effluent Chronic Toxicity

- a. *Permit Requirements.* This permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, and in accordance with USEPA and State Water Board Task Force guidance, and Best Professional Judgment. This permit implements the Basin Plan narrative toxicity objective via monitoring with numeric “triggers” to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are consistent with the CTR and SIP requirements.
- b. *Chronic Toxicity Triggers.* This Order includes chronic toxicity triggers, which are an eleven sample median of 10 chronic toxicity (TUC²) and a 90 percentile value of 20 TUC.
- c. *Monitoring History.* The Discharger's chronic toxicity monitoring data from 2002 through 2006 contain TUC values ranging from 3.3 to 27.8.

D. Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

2. Satisfaction of Antidegradation Policy

40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings.

The permitted discharge is consistent with the antidegradation provision of 40 CFR § 131.12 and State Water Board Resolution 68-16, and the final limitations in this Order are in compliance with antidegradation requirements and meet the requirements of the SIP because these limits hold the Discharger to performance levels that will not cause or contribute to water impairment or further water quality degradation. This is because this Order does not provide for an increase in the permitted design flow, allow for a reduction in the level of treatment, or increase effluent limitations, with the exception of cyanide and copper.

² A TUC equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC₂₅, EC₂₅, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period will result in the establishment of effluent limits for chronic toxicity.

In the case of cyanide, alternate limits based on a site-specific objective will be higher than the current limit if the site-specific objectives for cyanide become effective during the permit term. However, the standards setting process for cyanide addressed antidegradation, and therefore, an analysis in this permit is unnecessary. As such, there will be no lowering of water quality beyond the current level authorized in the previous permit, which is the baseline by which to measure whether degradation will occur.

For copper, this Order establishes final WQBELs, whereas the previous permit included only an interim limit. Although the final WQBELs are above the previous interim limitation, the concentration of copper discharges is unlikely to change because the Discharger proposes no changes to its operations. Copper concentrations in the effluent are related to the copper concentrations in the intake water and to the number of cycles performed in the reverse osmosis unit before the reject water is discharged. Copper concentrations are unlikely to increase because the copper concentrations of the intake water will not change, and the Discharger proposes no increase to the number of cycles it runs the reverse osmosis units. Copper concentrations are expected to decrease over time as the Discharger develops and implements its copper action plan as required by the permit.

Additionally, the Order establishes alternate copper limits based on site-specific objectives developed since the previous permit. These limits are likely to become effective during the permit term. Like cyanide, the standards setting process for copper addressed antidegradation, and therefore, an analysis in this permit is unnecessary. The copper action plan satisfies the copper site-specific objectives Basin Plan amendment requirements.

The Order continues the status quo with respect to the level of discharge authorized in the previous permit and thus there will be no change in water quality beyond the level that was authorized in the last permit. Findings authorizing degradation are thus unnecessary.

3. Stringency of Requirements for Individual Pollutants

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to section

131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

Summary of Effluent Limitations Discharge Point E-001

Table F-9. Summary of Water Quality Based Effluent Limitations

Parameter	Units	Final Effluent Limits	
		AMEL	MDEL
Copper ^[1]	µg/L	45	83
Cyanide ^[2]	µg/L	2.6	6.4
Dioxin- TEQ ^[3]	µg/L	1.4 x 10 ⁻⁸	2.8 x 10 ⁻⁸

^[1] As described in this Fact Sheet, the Regional Water Board adopted SSOs for copper in non-ocean, marine waters of the Region. Based on these SSOs of 2.5 and 3.9 µg/L as four-day and one-hour average criteria, effluent limitations would be an AMEL of 27 µg/L and an MDEL of 51 µg/L. If these SSOs for copper become effective, the alternate effluent limitations will also become effective immediately, so long as the SSOs and their current justification remain unchanged.

^[2] As described in this Fact Sheet, the Regional Water Board adopted SSOs for cyanide in non-ocean, marine waters of the Region. Based on these SSOs of 2.9 µg/L and 9.4 µg/L as four-day and one-hour average criteria, final effluent limitations would be an AMEL of 19 µg/L and an MDEL of 46 µg/L. If these SSOs for cyanide become effective, the alternate effluent limitations will become effective immediately, so long as the SSOs and their current justification remain unchanged.

^[3] Final limitations for dioxin-TEQ shall become effective on July 1, 2018.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

With the exception of total ammonia, these limitations are in the existing permit and are based on water quality objectives for physical, chemical, and biological characteristics of receiving waters from Chapter 3 of the Basin Plan. The total ammonia receiving water limit was removed because total ammonia concentrations in the effluent over the past permit cycle did not trigger reasonable potential for this pollutant.

B. Groundwater

Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP.

A. Influent Monitoring

Not Applicable

B. Effluent Monitoring

The following bulleted text summarizes effluent monitoring requirements for E-001 in the MRP, including changes from the previous MRP.

- Monitoring requirements for flow rate, pH, temperature, acute toxicity, chronic toxicity, copper, mercury, and standard observations are unchanged from the previous permit.
- Monitoring for nickel is no longer required because there were no violations of effluent limits during the permit cycle and because reasonable potential was not triggered for this pollutant.
- The monitoring frequency for salinity was increased from quarterly to monthly to determine compliance with effluent limits. Quarterly monitoring is not sufficient because the salinity of the receiving water varies dramatically over time.
- Monitoring is no longer required for conductivity because it is a duplicative parameter to estimate salinity.
- Monitoring is no longer required for settleable solids because this Order does not contain a limit for this parameter.
- Monitoring is now required for dioxin-TEQ because reasonable potential was triggered for this pollutant.

Routine monitoring for toxic pollutants is limited to those pollutants that have numeric limitations established by the Order. Less frequent monitoring for all CTR pollutants is required in accordance with the August 6, 2001 Letter from the Regional Water Board to all Discharger.

C. Whole Effluent Toxicity Testing Requirements

The Basin Plan requires Discharger to conduct flow-through effluent toxicity tests (Chapter 4, Acute Toxicity) to measure the toxicity of wastewaters and to assess negative impacts upon water quality and beneficial uses caused by the aggregate toxic effect of the discharge of pollutants. This Order includes effluent limitations for whole effluent acute toxicity and monitoring requirements for whole effluent chronic toxicity. All tests shall be performed according to the U.S. EPA-approved method in 40 CFR Part 136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water, 5th Edition."

This Order requires that the Discharger continue its effluent toxicity monitoring efforts as part of the compliance requirements. This requirement is based on the Basin Plan and best professional judgment.

D. Receiving Water Monitoring

1. Surface Water

The following bulleted text summarizes receiving water monitoring requirements for C-11, C-12, and C-13 in the MRP, including changes from the previous MRP.

- Monitoring frequencies for flow dissolved oxygen, pH, and temperature have been changed from quarterly to monthly to determine compliance with effluent limits.
- Monitoring for salinity on a monthly basis is now required to determine compliance with effluent limits.
- Monitoring for standard observations have not been changed from the previous permit.

2. Groundwater

Not Applicable

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

These provisions are based on 40 CFR Part 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future and other possible situations.

2. Special Studies and Additional Monitoring Requirements

a. Effluent Characterization Study

This Order does not include effluent limitations for the selected constituents addressed in the August 6, 2001 Letter that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001 Letter and as specified in the MRP. If concentrations of these constituents increase significantly, the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases result in reasonable potential to cause or contribute to an excursion above the applicable WQO/WQC. This provision is based on the Basin Plan and the SIP.

b. Ambient Background Receiving Water Study

This provision is based on the Basin Plan, the SIP, and the August 6, 2001 Letter for priority pollutant monitoring. As indicated in this Order, this requirement may be met by participating in a collaborative study.

3. Best Management Practices and Pollution Prevention

This provision is based on Chapter 4 of the Basin Plan and Section 2.4.5 of the SIP.

Additionally, on October 15, 2003, the Regional Water Board adopted Resolution R2-2003-0096 to promote Pollution Minimization Program development and excellence. Specifically, the Resolution embodies a set of eleven guiding principles that will be used to develop tools such as "P2 menus" for specific pollutants, as well as provide guidance in improving P2 program efficiency and accountability. Key principles in the Resolution include promoting watershed, cross-program and cross-media approaches to pollution prevention, and jointly developing tools to assess program performance that may include peer reviews, self-audits or other formats.

4. Construction, Operation, and Maintenance Specifications

- a. Wastewater Facilities, Review and Evaluation, Status Reports. This provision is based on the previous permit and the Basin Plan.

- b. Operations and Maintenance Manual, Review and Status Reports. This provision is based on the Basin Plan, the requirements of 40 CFR Part 122, and the previous permit.
- c. Contingency Plan, Review and Status Reports. This provision is based on the Basin Plan, the requirements of 40 CFR Part 122, and the previous permit.

5. Compliance Schedule for Dioxin-TEQ

The compliance schedules and the requirement to submit reports on further measures to reduce concentrations of dioxin-TEQ to ensure compliance with final limits are based on the Basin Plan Section 4.7.6 and 40 CFR 122.47(a)(3). As previously described, the Discharger submitted an Infeasibility Study, and the Regional Water Board staff confirmed its assertions. Based on this, a compliance schedule is appropriate for dioxin-TEQ because the Discharger has made good faith and reasonable efforts towards characterizing the sources so time to allow additional efforts is necessary to achieve compliance. The maximum allowable compliance schedule is granted to the Discharger for this pollutant because of the considerable uncertainty in determining and effective measure (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limits. It is appropriate to allow the Discharger sufficient time to first explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan Section 4.13 which states: "In general, it is often more economical to reduce overall pollutant loadings into the treatment systems than to install complex and expensive technology at the plant."

6. Action Plan for Cyanide

This provision is based on the December 4, 2006 Basin Plan Amendment for site-specific objectives for cyanide for San Francisco Bay. The Basin Plan requires a cyanide action plan to ensure compliance with antidegradation policies when cyanide limits are based on the site-specific objectives (e.g. the alternate limits).

7. Action Plan for Copper

This provision is based on the June 16, 2007 Basin Plan Amendment for site-specific objectives for copper for San Francisco Bay. The standard-setting process for the copper site-specific objective concluded that water quality would not be degraded if effluent limits were derived for site-specific objectives (e.g. the alternate limits). These conclusions were based, in part, on assumptions that Discharger would implement copper action plans and maintain their current performance. This permit requires an action plan consistent with what would be required by the site-specific objectives to be consistent with antidegradation policies. Moreover, this permit contains higher copper limits than the previous permit and these higher limits will become effective before the site-specific objectives and alternate limits. To comply with antidegradation requirements, this permit requires the action plan immediately.

VII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for Dow Chemical Company, Pittsburg Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the Contra Costa Times on March 19, 2008.

B. Written Comments

Staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Officer at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on April 14, 2008.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular meeting on the following date and time and at the following location:

Date: May 14, 2008
Time: 9:00 AM
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Website address is www.waterboards.ca.gov/sanfranciscobay/ where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged by calling (510) 622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Vincent Christian at 510-622-2336, vchristian@waterboards.ca.gov.

ATTACHMENT G – REGIONAL WATER BOARD ATTACHMENTS

The following documents are part of this Order but are not physically attached due to volume. They are available on the Internet at:

<http://www.waterboards.ca.gov/sanfranciscobay/Download.htm>.

- Self-Monitoring Program, Part A (August 1993)
- Standard Provisions and Reporting Requirements, August 1993
- Regional Water Board Resolution No. 74-10
- August 6, 2001 Regional Water Board staff letter, “Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy”